



EPA's Air Regulations and CHP

State & Local Energy Efficiency Action Network
Industrial Energy Efficiency & CHP Working Group
Webinar



U.S. Environmental Protection Agency
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Topics

- Overview: Implications for CHP of EPA New Regulations
- EPA's CHP Partnership
 - Supporting Recognition of CHP Emissions & Energy Benefits
- Recent EPA Regulations
 - Context
 - Power Plants
 - Air Emissions
 - **Cross-State Air Pollution Rule (CSAPR)**
 - **Mercury and Air Toxics Standards (MATS)**
 - Water/Solid Waste
 - **Cooling Water Intake Structures (CWIS)**
 - **Coal Combustion Residuals (CCR)**
 - Industrial, Commercial and Institutional (ICI) Boilers
 - **ICI Boiler NESHAPs** (National Emissions Standards for Hazardous Air Pollutants)
- For more information



Overview

EPA New Regulations: Implications for CHP

- Power Sector
 - Several new rules will require retrofit with emissions controls and/or add to operating costs
 - Most significant impacts on older coal-fired plants
 - Also impacts on older oil/gas steam and, possibly, some nuclear plants
 - CHP implications
 - Modest increases in electricity and natural gas prices
 - Need for new generation capacity sooner than otherwise required
 - Particularly in regions with significant amount of older coal and oil/gas steam capacity
 - Need for geographically targeted capacity (regional and/or localized)
- Industrial/Commercial/Institutional Boilers
 - New rule will require retrofit with emissions controls or fuel switching
 - Significant improvement in relative economics of gas CHP conversion of existing coal and oil-fired boilers
- The rules are complicated; this is an overview only
 - See EPA websites provided for details



Combined Heat & Power (CHP)

- CHP: key energy efficiency resource
- EPA recognizes CHP's unique role in
 - Protecting public health and welfare
 - Addressing climate change
- Increased CHP investment will help address key challenges:
 - Reducing GHG emissions and other air pollutants
 - Increasing clean energy generation
 - Improving electricity system reliability





CHP Partnership

- Supports development of new CHP projects
 - Over 400 Partners
 - 5,000 MW of new capacity since 2001
- Offers project assistance and web resources
- Coordinates closely with DOE



Recognizing CHP's Clean Air Benefits

- CHP Partnership helping ground Clean Air Act (CAA) implementation in first-hand CHP knowledge
- Working to recognize CHP's pollution-prevention benefits in regulations, guidance and other material
 - Output-based standards
 - Boiler MACT and other regulations
 - SIP development guidance
 - GHG permitting guidance
 - GHG BACT documents
- Working to address NSR permitting for CHP
- Updating GHG Protocol accounting standard for CHP



Recent EPA Regulations

- Power Plants
 - Air Emissions
 - **Cross-State Air Pollution Rule (CSAPR)**
 - **Mercury and Air Toxics Standards (MATS)**
 - Water/Solid Waste
 - **Cooling Water Intake Structures (CWIS)**
 - **Coal Combustion Residuals (CCR)**
- Industrial, Commercial and Institutional (ICI) Boilers
 - **ICI Boiler National Emissions Standards for Hazardous Air Pollutants (NESHAPs)**



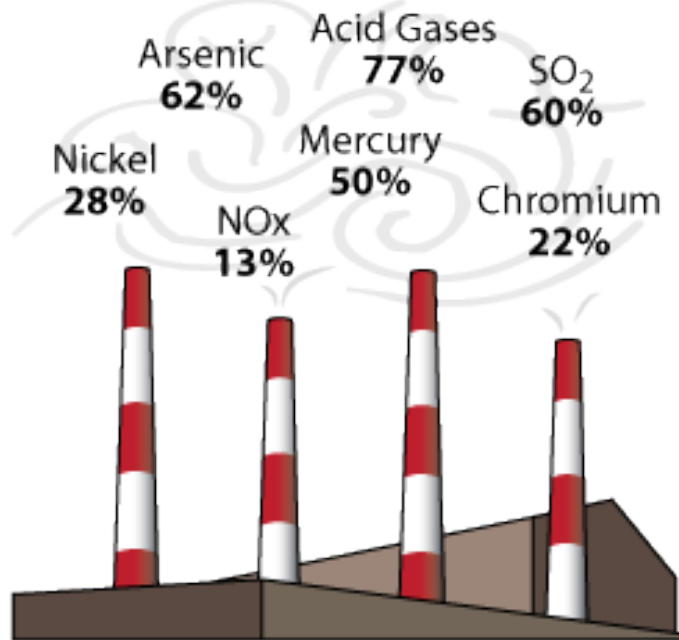
Key Clean Air Power Plant Rules Overdue Public Health Protection Delayed

- Important Clean Air Act (CAA)-required power plant controls have been delayed more than a decade.
- CAA required states by 2000 to control interstate pollution.
 - Clean Air Interstate Rule (CAIR) finalized in 2005 but court found legal flaws and ordered EPA to replace it. CAIR remains in place in the interim.
 - Cross-state Air Pollution Rule (CSAPR) finalized July 2011. Replaces CAIR beginning in 2012. Tightens caps further in 2014.
- CAA also required control of hazardous air pollutants from power plants.
 - Positive determination in 2000 meant final rule due by 2002.
 - Clean Air Mercury Rule for power plants finalized in 2005 but court found rule legally flawed and vacated it. Also, rule failed to address all air toxics.
 - Mercury and Air Toxics Standards rule finalized December 2011.
- **Benefits greatly outweigh costs**

Power Plants are Big Emitters and Many Lack Advanced Controls

Portion of US air pollution that comes from power plants

Portion of U.S. air pollution that comes from power plants

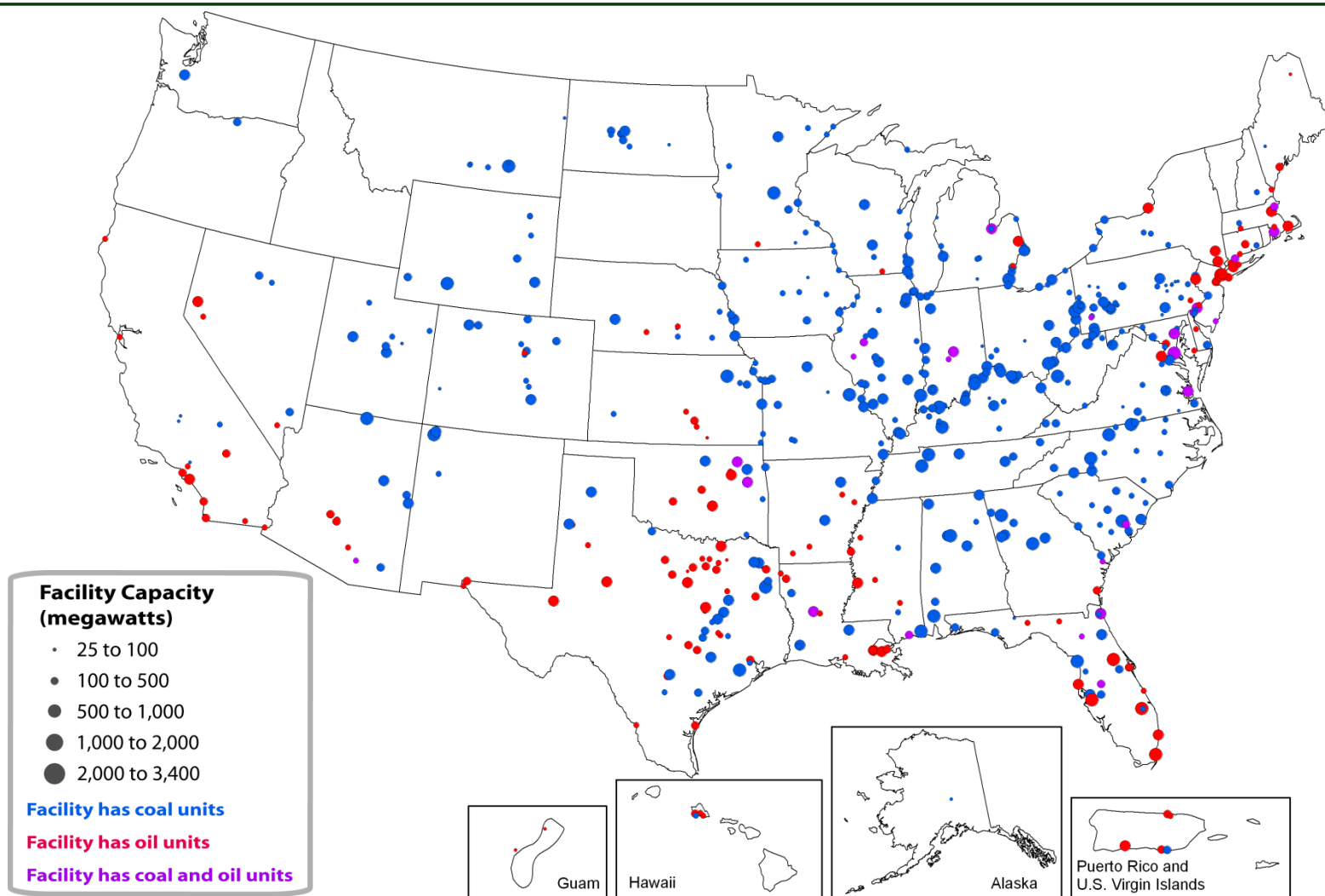


About **40%**
Of coal-burning units
don't use add-on
controls such as
scrubbers

Sources: Portion of pollution -- NEI Trends Data (2009) and IPM (2010) (SO₂, NO_x); MATS rule modeling platform, based on inventory used for 2005 NATA (Hg); Inventory used for 2005 NATA (other toxics). Percent of units: EPA Base Case v. 4.10 PTR



Location of Coal and Oil Power Plants





Cross-State Air Pollution Rule (CSAPR)

- **On July 6, 2011**, EPA finalized the CSAPR under the “good neighbor” provision of the Clean Air Act to reduce transported pollution that significantly affects downwind nonattainment and maintenance problems.
- CSAPR will reduce emissions of SO₂ and NO_x from power plants in the eastern half of the United States.
- The rule will reduce fine particle and ozone air pollution, saving lives, preventing illnesses, creating jobs, and protecting communities.
- The costs are affordable, and greatly outweighed by the benefits:
 - The \$800 million spent annually on this rule in 2014, along with the roughly \$1.6 billion per year in capital investments already under way as a result of CAIR, are improving air quality for over 240 million Americans and will result in \$120 to \$280 billion in annual benefits.
 - The effect on electricity prices for specific regions or states are well within the range of normal price fluctuations.
- The rule puts in place a new framework to address pollution that affects air quality in downwind states, helping states meet air quality standards quickly:
 - Similar to previous allowance trading programs, the rule encourages innovation and cost-savings.
- **On December 30, 2011**, the U.S. Court of Appeals for DC:
 - Stayed CSAPR pending judicial review and set April 2012 for hearing.
 - Ordered CAIR to remain in effect pending resolution.



CSAPR Replaces CAIR

- This rule responds to the court ruling remanding the 2005 Clean Air Interstate Rule (CAIR) and the 2006 CAIR Federal Implementation Plans (FIPs).
- Addresses the December 2008 court decision
 - The decision kept the requirements of CAIR in place temporarily and directed EPA to issue a new rule addressing the provisions of the Clean Air Act concerning interstate transport of air pollution.
- Achieves emission reductions beyond those originally required by CAIR through additional air pollution reductions from power plants beginning in 2012 with further reductions required beginning in 2014.



CSAPR Responds to Court Remand

- The methodology used to measure each state's significant contribution to another state emphasizes air quality (as well as cost considerations) and uses state-specific data and information.
- The methodology also gives independent meaning to the "interfere with maintenance" requirement of the Clean Air Act.
- The state budgets for SO₂, annual NO_x, and ozone season NO_x are directly linked to the measurement of each state's significant contribution and interference with maintenance.
- The compliance deadlines are coordinated with the attainment deadlines for the relevant NAAQS.
- The rule includes provisions to assure that all necessary reductions occur in each individual state.
- The allowance allocation approach is "fuel" and "control" neutral, does not make use of fuel adjustment factors, and does not make use of existing Title IV allowances for SO₂ emissions.

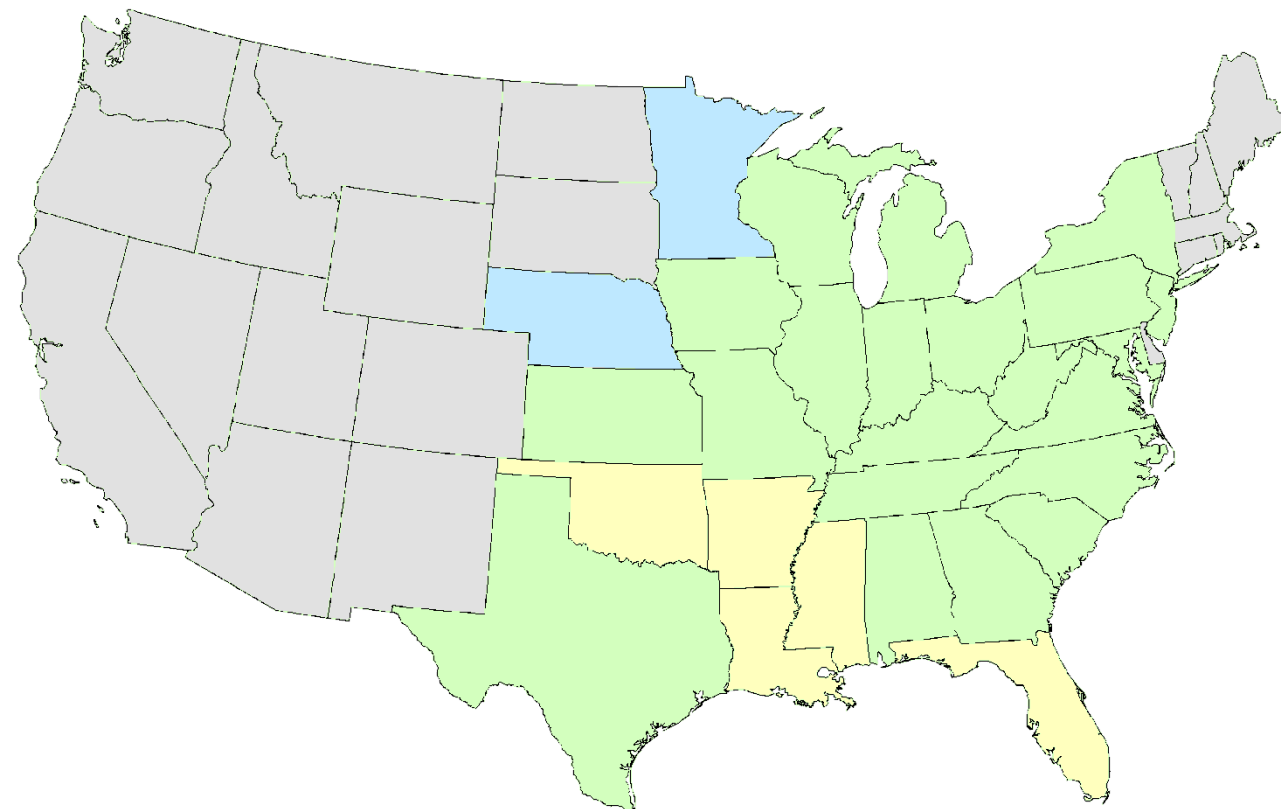


Transition to CSAPR

- CAIR will be implemented through 2011 compliance periods.
- CSAPR covers emissions in 2012 and beyond.
- CSAPR establishes new allowances for all programs.
 - There is no carryover of Acid Rain Program, NO_x SIP Call/NBP, or CAIR allowances.
- To comply with the rule, EPA anticipates power plants will:
 - Improve efficiency at existing sources;
 - Improve performance of existing SO₂ and NO_x pollution control equipment;
 - Use previously planned or constructed clean generating sources;
 - Load shift to existing cleaner units;
 - Use lower sulfur coal, switch fuels; or
 - Install or upgrade pollution control equipment, such as low NO_x burners or scrubbers (Flue Gas Desulfurization) over time; and/or
 - Buy allowances.



Cross-State Air Pollution Rule States

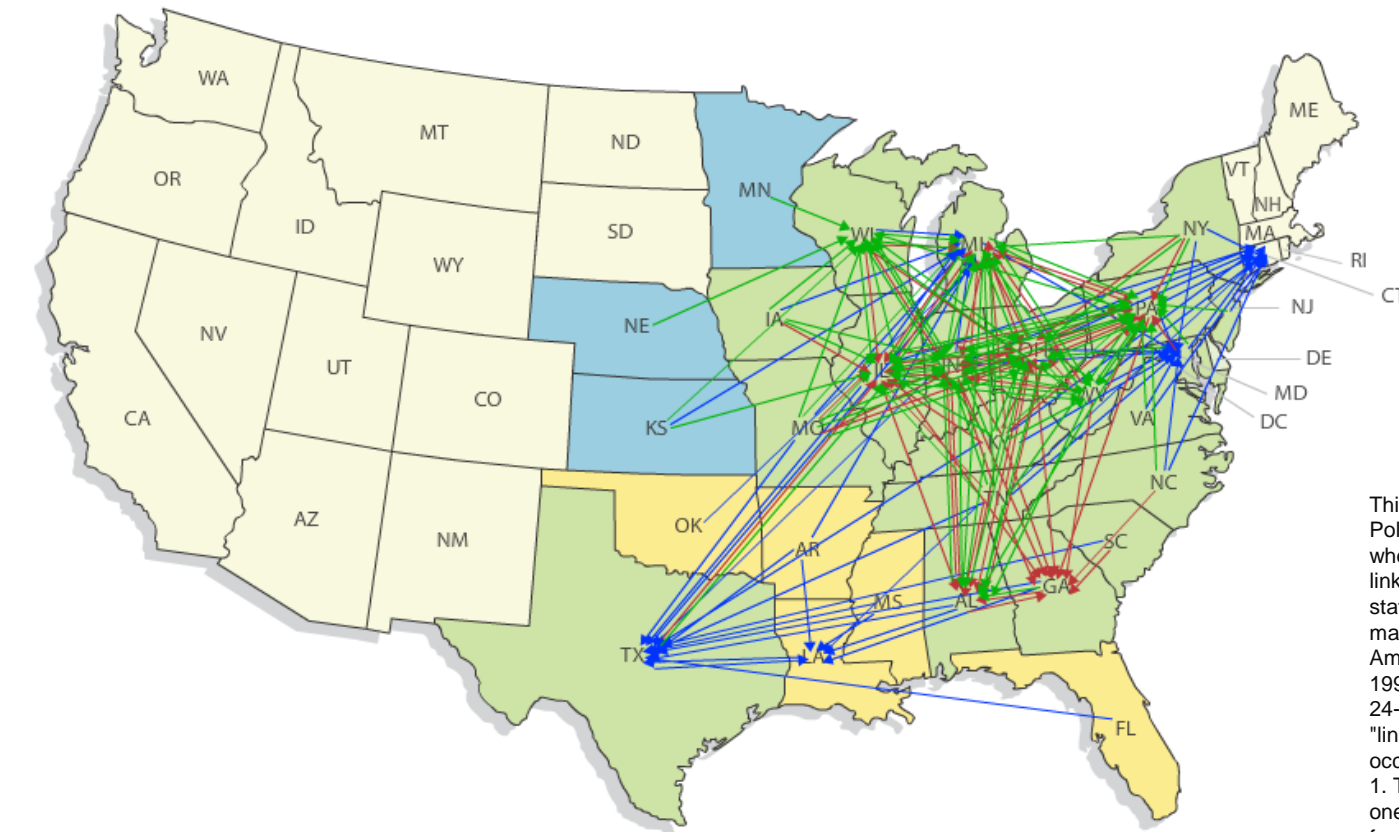


- States controlled for both fine particles (annual SO₂ and NO_x) and ozone (ozone season NO_x) (21 States)
- States controlled for fine particles only (annual SO₂ and NO_x) (2 States)
- States controlled for ozone only (ozone season NO_x) (5 States)
- States not covered by the Cross-State Air Pollution Rule

- Cross-State Air Pollution Rule includes separate requirements for:
 - Annual SO₂ reductions (2 groups)
 - Annual NO_x reductions
 - Ozone-season NO_x reductions

*This map includes states covered in the supplemental notice of proposed rulemaking.

Upwind-Downwind Linkages in CSAPR States



Legend

- States controlled for both fine particles (annual SO₂ and NO_x) and ozone (ozone season NO_x) (20 States)
- States controlled for fine particles only (annual SO₂ and NO_x) (3 States)
- States controlled for ozone only (ozone season NO_x) (5 States)
- States not covered by the Cross-State Air Pollution Rule

Key to Arrows

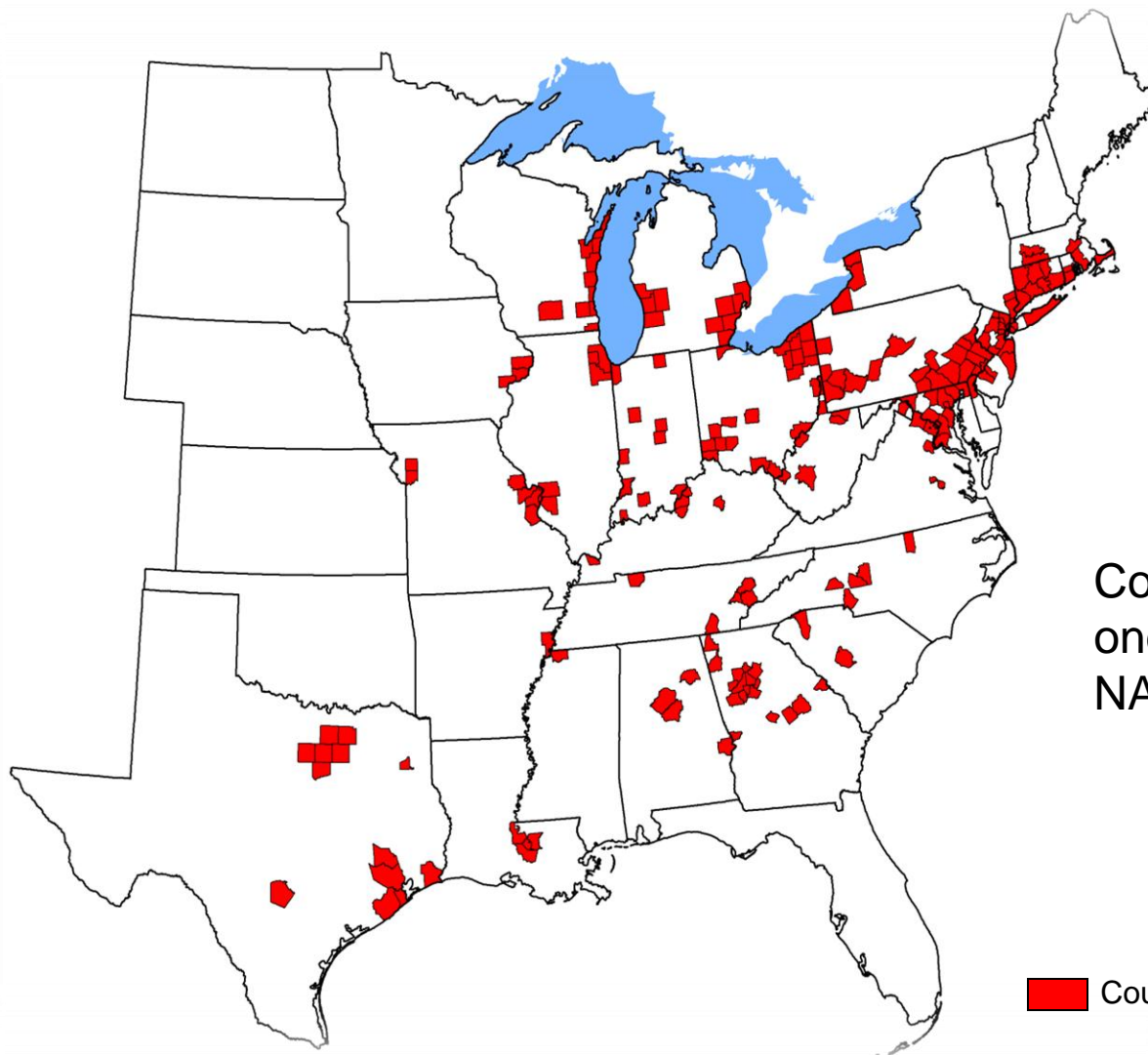
- Upwind-Downwind Linkage for Ozone
- Upwind-Downwind Linkage for Annual PM_{2.5}
- Upwind-Downwind Linkage for Daily PM_{2.5}

This map shows the Cross-State Air Pollution Rule "linkages" between states where pollution from upwind states is linked to one or more areas in downwind states that have problems attaining or maintaining the 1997 ozone National Ambient Air Quality Standards (NAAQS), 1997 annual PM_{2.5} NAAQS, and the 2006 24-hour PM_{2.5} NAAQS. For states to be "linked" on this map, two things must occur:

1. The downwind state must have at least one nonattainment or maintenance area for these NAAQS; and,
2. Sources in the upwind state must emit enough SO₂ or NO_x pollution to affect air quality in that area at or above the threshold level set by EPA.



Counties Violating Air Quality Standards in the CSAPR Region (2003-07 air quality monitoring data)



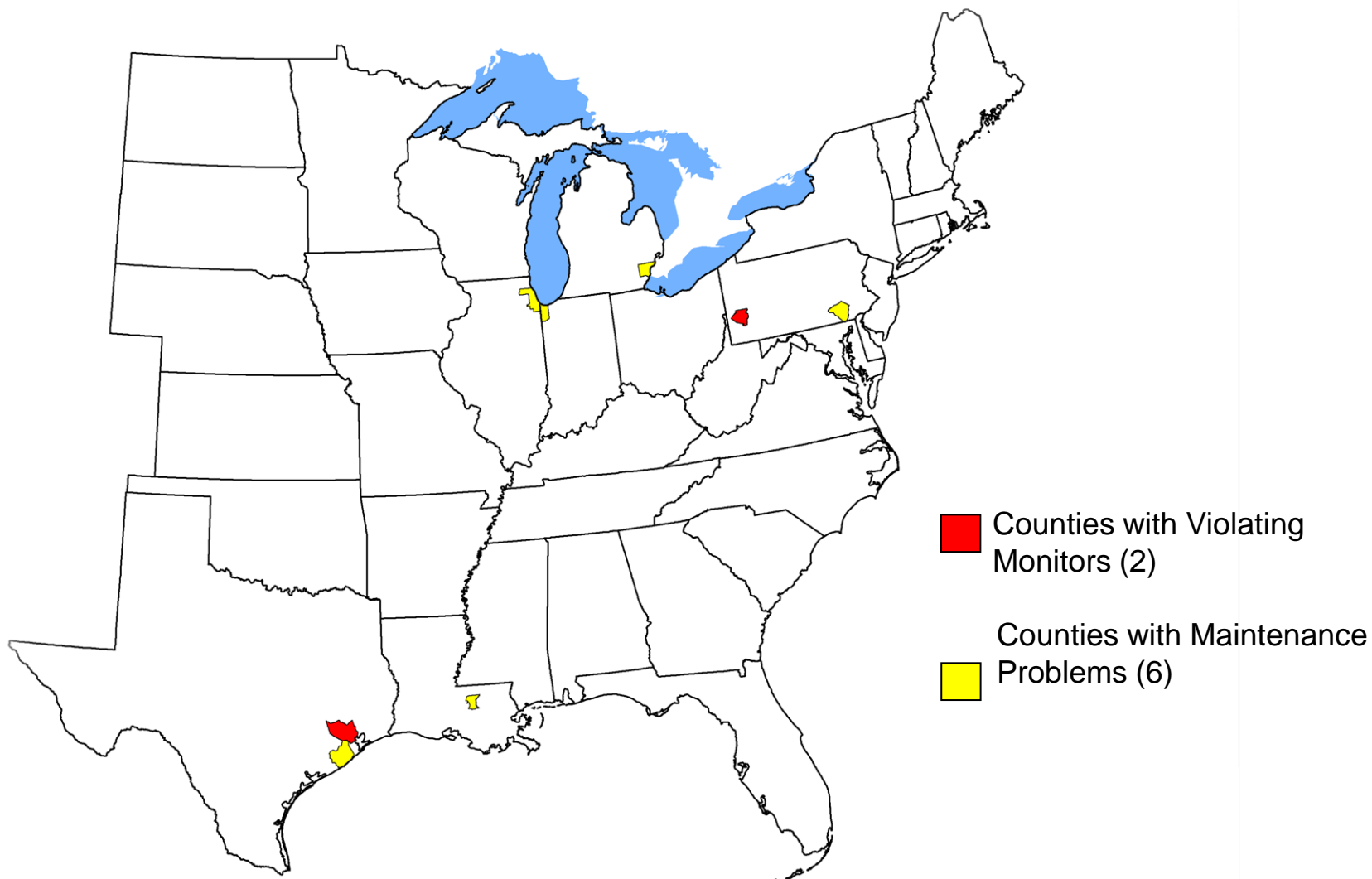
Counties in red are violating one or more of the following NAAQS:

- 1997 $PM_{2.5}$
- 1997 ozone
- 2006 $PM_{2.5}$

 Counties with Violating Monitors (207)



Counties Projected to Have Ozone and PM_{2.5} Air Quality Problems in 2014 with CSAPR



This analysis assumes that the Clean Air Interstate Rule is not in effect. It does reflect other federal and state requirements to reduce emissions contributing to ozone and fine particle pollution that were in place as of February 2009. These results reflect the Cross-State Rule as finalized on July 6th, 2011 and includes the emission reductions expected under the SNPR.



Health Benefits for Millions of Americans

- EPA estimates the annual benefits from the rule range between \$120-\$280 billion (2007 \$) in 2014.
 - Most of these benefits are public health-related.
 - \$4 billion are attributable to visibility improvements in areas such as national parks and wilderness areas.
- Other non-monetized benefits include reductions in acidification of lakes, streams and forests, eutrophication of estuaries and coastal waters.

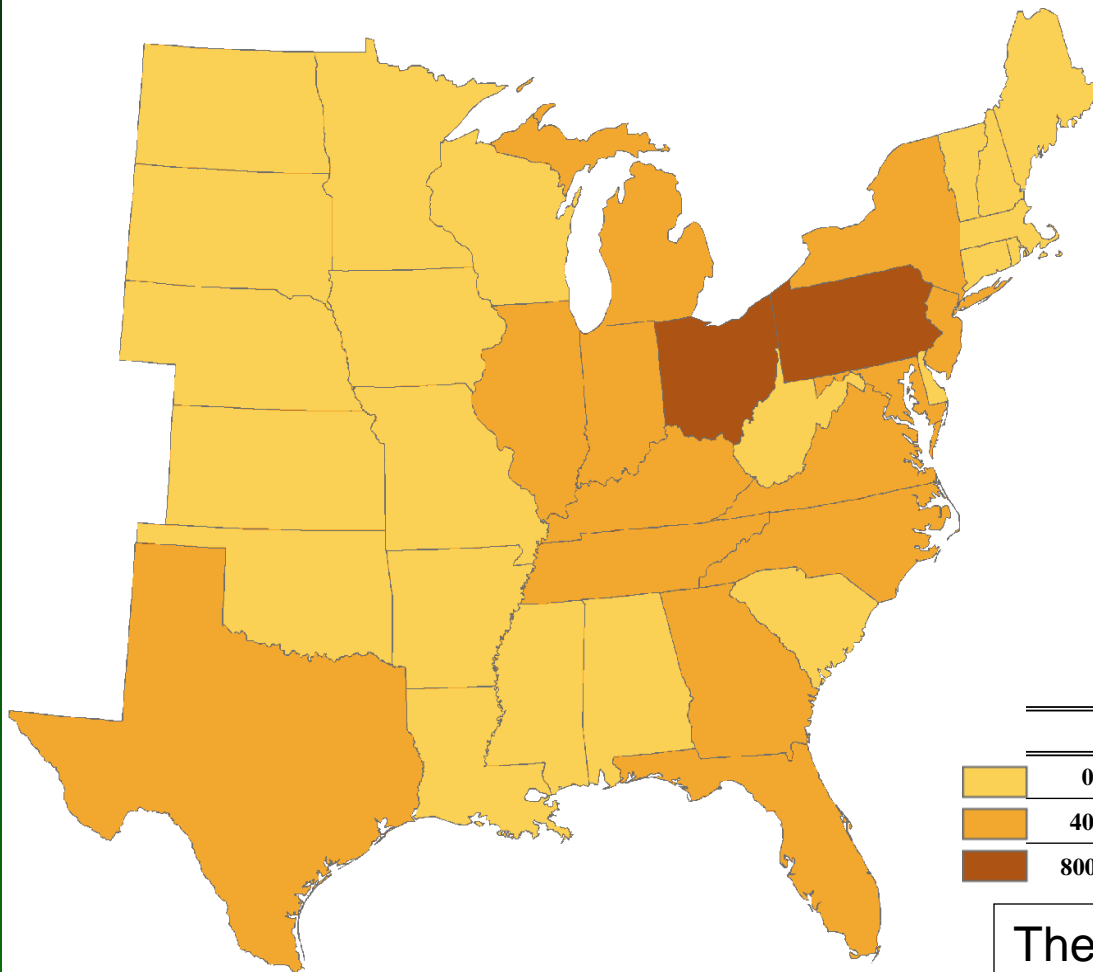
Estimated Number of Adverse Health Effects Avoided under the Cross-State Air Pollution Rule*

Health Effect	Annual Number of Cases Avoided
Premature mortality	13,000 to 34,000
Non-fatal heart attacks	15,000
Hospital and emergency department visits	19,000
Acute bronchitis	19,000
Upper and lower respiratory symptoms	420,000
Aggravated asthma	400,000
Days when people miss work or school	1.8 million

* Impacts avoided due to improvements in PM_{2.5} and ozone air quality in 2014



States Investing in Pollution Control Will See Large Benefits



- EPA estimates the annual benefits from the rule range between \$120-\$280 billion (2007 \$) in 2014.

- Much of the annual benefit results from the prevention of 13,000 to 34,000 premature mortalities.

State-Level Benefits in 2014

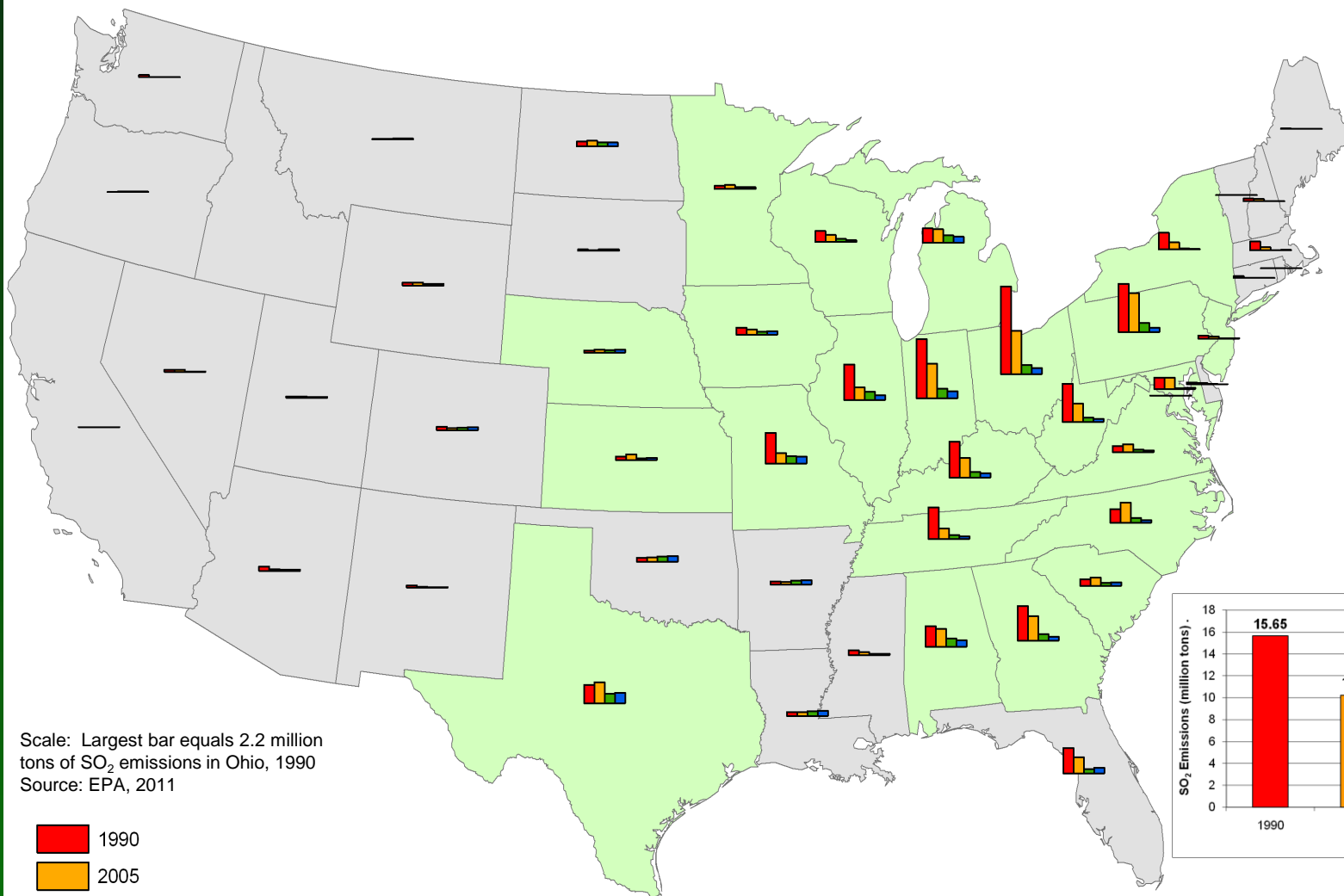
	Mortality Avoided		Monetized Benefits (billion \$)	
	Low	High	Low	High
	0 to 400	0 to 1,000	0 to 3.3	0 to 8
	400 to 800	1,000 to 2,000	3.3 to 7	8 to 17
	800 to 1,300	2,000 to 3,300	7 to 11	17 to 27

The public health benefits in most states exceed the combined annual costs of implementing the CSAPR for the entire region.

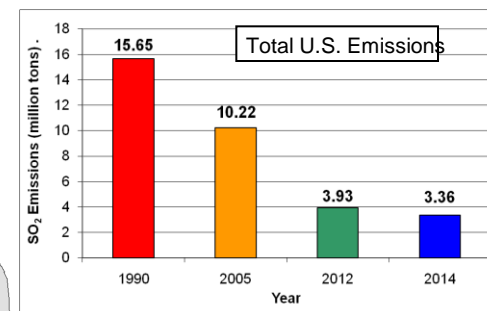
Cross-State Air Pollution Rule RIA, Table 1-1 and 1-2; mortality impacts estimated using Laden et al. (2006), Levy et al. (2006), Pope et al. (2002) and Bell et al. (2004); monetized benefits discounted at 3%



Annual SO₂ Power Plant Emissions 1990-2014 *



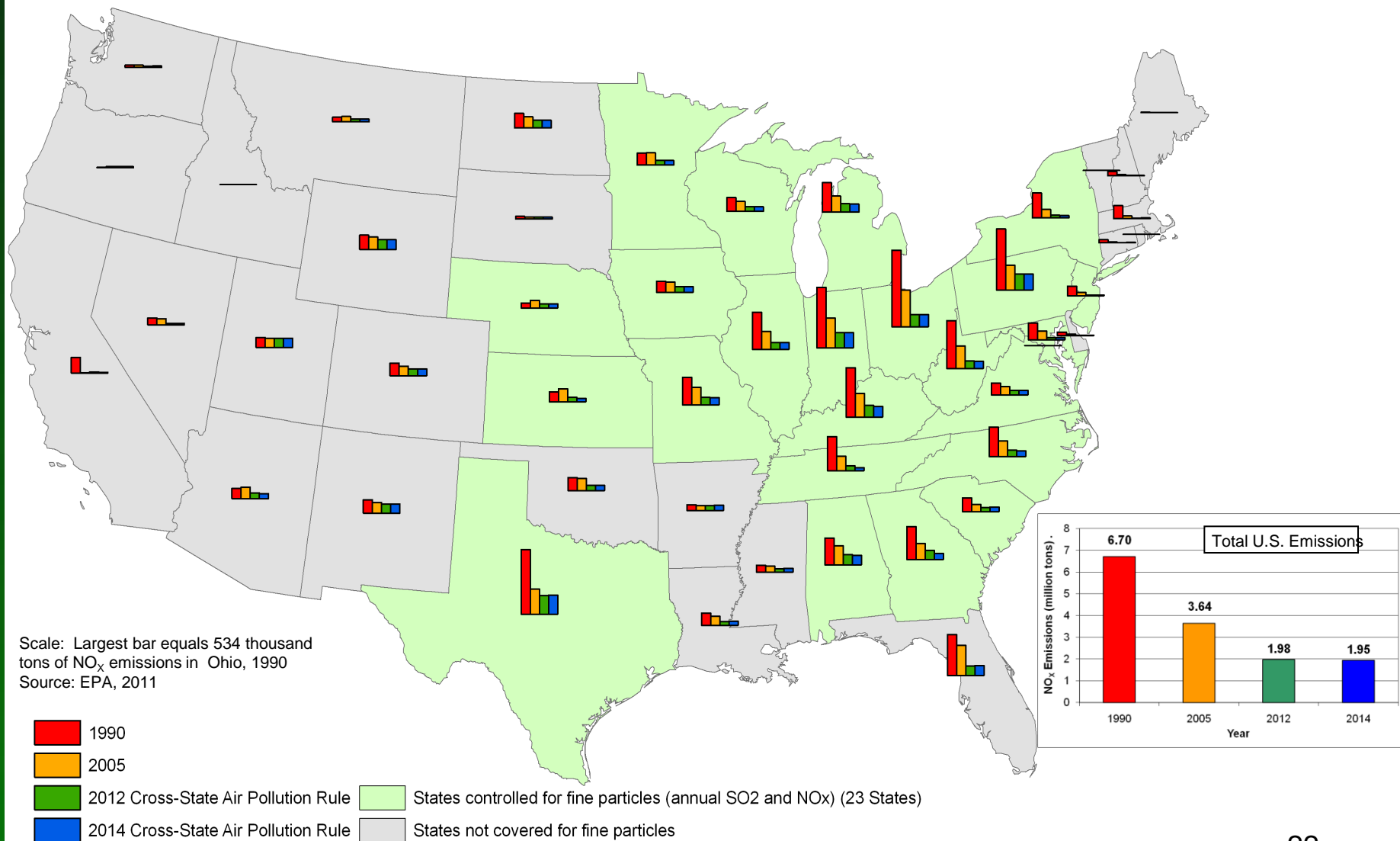
Scale: Largest bar equals 2.2 million tons of SO₂ emissions in Ohio, 1990
Source: EPA, 2011



* Emissions shown include only Acid Rain Program sources; these sources include 96% of modeled annual SO₂ emissions and 71% of modeled units in 2014.



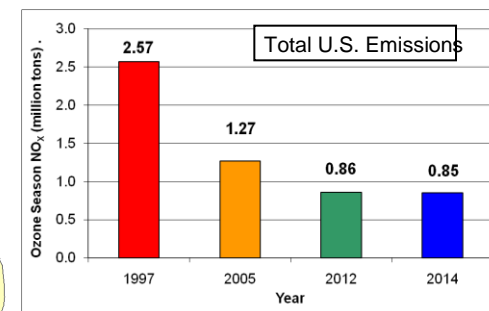
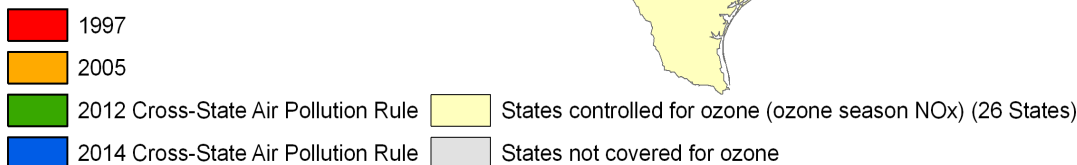
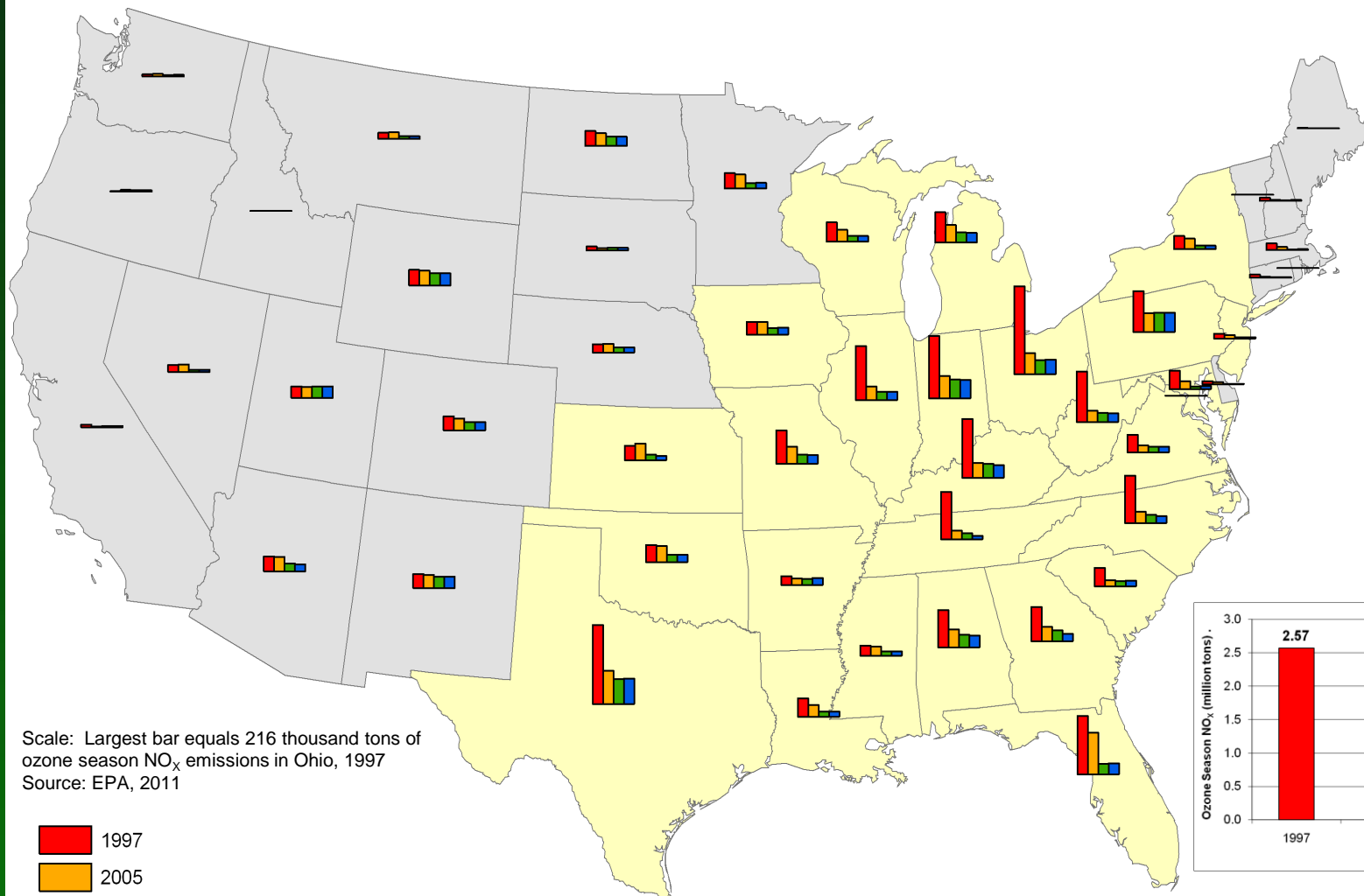
Annual NO_x Power Plant Emissions 1990-2014 *



* Emissions shown include only Acid Rain Program sources; these sources include 94% of modeled annual NO_x emissions and 71% of modeled units in 2014.



Ozone Season NO_x Power Plant Emissions 1997-2014 *



* Emissions shown include only Acid Rain Program sources; these sources include 94% of modeled ozone season NO_x emissions and 71% of modeled units in 2014.



CSAPR: Treatment of CHP

- Coverage

- Applicable to fossil-fired boilers and combustion turbines serving generator >25 MWe and producing power for sale
- Includes CHP facilities that sell $\geq 1/3^{\text{rd}}$ of electrical output and >25 MWe
 - Same as Title IV (Acid Rain program) of 1990 Clean Air Act Amendments

- Allowance Allocations

- Allocations of state budgets to sources within the state are based on historic heat input with some limitations
- Initially established through a “Federal Implementation Plan” (FIP)
- States can replace FIP with “State Implementation Plan” (SIP) beginning in 2014 assigning allocations on a different basis, e.g.:
 - Output-based allocations
 - Set-asides for end-use energy efficiency, CHP or renewable energy



Mercury and Air Toxics Standards (MATS)

- **On December 16, 2011**, EPA finalized the Mercury and Air Toxics Standards (MATS), *the first national standards* to reduce emissions of mercury and other toxic air pollutants from new and existing coal- and oil-fired power plants
- Standards would reduce emissions of:
 - Metals, including mercury (Hg), arsenic, chromium, and nickel
 - Acid gases, including hydrogen chloride (HCl) and hydrogen fluoride (HF)
 - Particulate matter
- Air toxic pollutants are linked to cancer, IQ loss, neurological damage, heart/lung disease and premature death
- Standards create uniform emissions-control requirements based on proven, currently in-use technologies and processes



MATS Compliance

- EPA expects most facilities will comply with this rule through a range of strategies, including the use of existing emission controls, upgrades to existing emission controls, installation of new pollution controls, and fuel switching.
- Existing sources generally will have up to 4 years if they need it to comply with MATS.
 - This includes the 3 years provided to all sources by the Clean Air Act. EPA's analysis continues to demonstrate that this will be sufficient time for most, if not all, sources to comply.
 - Under the Clean Air Act, state permitting authorities can also grant an additional year as needed for technology installation. EPA expects this option to be broadly available.
- EPA is also providing a clear pathway for reliability critical units to obtain a schedule with up to an additional year to achieve compliance. This pathway is described in a separate enforcement policy document. The EPA believes there will be few, if any situations, in which this pathway will be needed.



Toxic Emissions from Power Plants Are a Serious Public Health Concern

- Power plants emit mercury, arsenic, other metals, acid gases, and particles into the air that harm people's health.
 - Uncontrolled releases of mercury from power plants damage children's developing nervous systems, which can reduce their IQ and impair their ability to think and learn
 - Mercury and many of the other toxic pollutants also pollute our nation's lakes and streams, and contaminate fish
 - Other metals such as arsenic, chromium, and nickel can cause cancer
 - Acid gases cause lung damage and contribute to asthma, bronchitis and other chronic respiratory disease, especially in children and the elderly
 - Particles cause premature death, increased numbers of hospital admissions and emergency department visits, and development of chronic respiratory disease.
- People – especially pregnant and nursing women, women who may become pregnant, and young children – who eat large amounts of fish from mercury-contaminated freshwater lakes and rivers in the U.S. are at the greatest risk
 - This includes Native American, Laotian, Vietnamese, African-American, Hispanic, and Caucasian subsistence fishers and their families
- The standards will also result in additional reductions of SO₂, which will reduce fine particles in the air we breathe and prevent thousands of deaths and hundreds of thousands of illnesses each year



Power Plants Are the Largest Remaining Source of Mercury Emissions in the U.S.

- In 1990 three source categories made up approximately two-thirds of total U.S. mercury emissions: municipal waste combustors, medical waste incinerators, and power plants
 - Two of the three are now subject to federal emissions standards
 - So are many other industries, such as cement plants and steel manufacturers
- Until today, more than 20 years after the 1990 CAA Amendments passed, there was no federal limit for toxic emissions – including mercury – for coal- or oil-fired power plants

Industrial Category	1990 Emissions tons per year (tpy)	2005 Emissions (tpy)	% Reduction
Power Plants	59	53	10%
Municipal Waste Combustors	57	2	96%
Medical Waste Incinerators	51	<1	>98%

Source: EPA's 2005 NATA Inventory Modified for the Toxics Rule 2005 Base Year (2010)



MATS Covers ~1,400 coal/oil-fired Units at ~600 Power Plants

- Includes units that burn coal, coal refuse, oil, or a synthetic gas derived from coal either exclusively, in combination together, or in any combination with other supplemental fuels. Natural gas power plants are not affected by this rule
- MATS covers emissions of all hazardous air pollutants from power plants
- The rule sets a few standards (for mercury, acid gases, non-mercury metal air toxics, and organic air toxics) to limit emissions of these pollutants
 - Most of these standards are numeric emissions limits; the standard for organic air toxics is a work practice standard
 - In some cases, these standards are “surrogates” for a number of pollutants. (e.g. setting a numeric HCl emissions limit to control all acid gases)
 - For many standards, sources can choose to meet the primary standard or an alternate standard. (e.g. MATS also sets a numeric SO₂ emissions limit as an alternate surrogate for acid gases)
- The CAA requires EPA to set the emission standards for existing sources at a level that is at least as stringent as the emission reductions achieved by the average of the best performing 12% of sources in the category



Benefits of MATS Are Significant

- The final rule will: prevent 90 percent of the mercury in coal burned in power plants from being emitted to the air; reduce 88 percent of acid gas emissions from power plants; and cut 41 percent of sulfur dioxide emissions from power plants beyond the reductions expected from the Cross State Air Pollution Rule
- Reduces mercury exposure from power plants for pregnant women and children, reducing the risk of damage to children's developing nervous systems that can impair their ability to think and learn
- Protects Americans from cancer and other health risks from exposure to metals such as arsenic, chromium, and nickel
- Prevents thousands of premature deaths each year by reducing the amount of dangerous fine particles in the air across the country
 - This includes neighborhoods near power plants and neighborhoods hundreds of miles away from the nearest power plant
- Protects thousands of lakes and streams – and the fish that live there and the mammals and birds that eat them – by reducing mercury and acid rain pollution
- Provides employment for thousands of American workers building, installing, and operating the equipment to reduce emissions of mercury, acid gases, and other toxic air pollutants



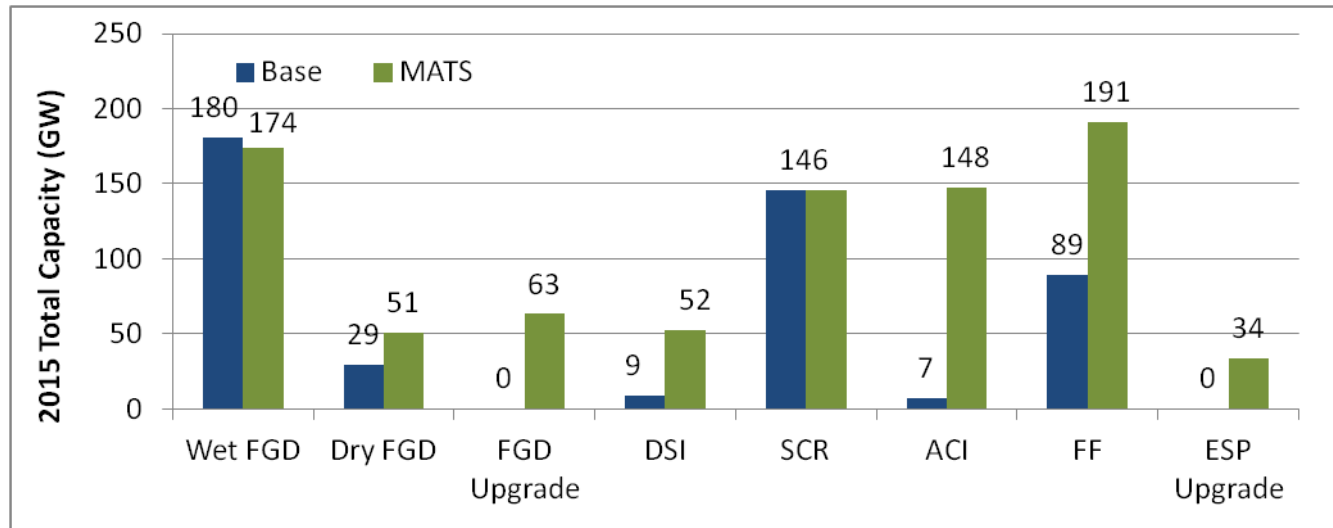
MATS Health Benefits in Detail

- The value of the improvements to health alone total \$37 billion to \$90 billion each year
- The estimated annual costs of this final rule are \$9.6 billion, about a billion dollars less than the proposed standards. This means that for every dollar spent to reduce this pollution, we will get \$3-\$9 in health benefits
- Each year the rule is fully implemented, the rule will prevent serious health effects, including:
 - 4,200 – 11,000 premature deaths
 - 4,700 heart attacks
 - 130,000 asthma attacks
 - 540,000 missed work or “sick” days
- Avoiding “sick days” saves companies and families money. It is particularly important for the millions of Americans whose jobs do not provide paid sick leave and who risk losing their jobs if they miss work too often
 - The rule is also projected to annually prevent 5,700 hospital admissions and emergency room visits; 2,800 cases of chronic bronchitis; and 3.2 million days when people must restrict their activities each year



Sources Can Achieve These Standards

- Proven control technologies to reduce these emissions such as scrubbers, fabric filters, and activated carbon injection are widely available
- Many units already use one or more of these technologies
- As a result of this standard, some power plants will upgrade existing controls (especially particulate matter controls like electrostatic precipitators)
- Power plants may also install new controls (such as fabric filters, dry sorbent injection, or activated carbon injection)



Retrofit pollution control installations on coal-fired capacity (by technology) with the base case and with the final MATS, 2015 (measured in GW capacity). Source: Integrated Planning Model run by EPA, 2011

FGD: flu gas desulfurization (scrubber)
DSI: dry sorbent injection

SCR: selective catalytic reduction
ACI: activated carbon injection
FF: fabric filter



MATS: Treatment of CHP

- Coverage
 - Applicable to coal and oil-fired CHP facilities that sell $\geq 1/3^{\text{rd}}$ of electrical output and >25 MWe
 - Same as Title IV of 1990 Clean Air Act Amendments
 - Otherwise, facilities may be subject to ICI Boiler NESHAPs (see below)
- Application of standards to CHP
 - Format
 - Output-based for new sources
 - Input or output-based for existing sources
 - Gross electrical + mechanical output + 75% of thermal output



Power Sector Water/Solid Waste Rules

- Cooling Water Intake Structures (CWIS). (“316b rule”)
 - Proposed March 2011; to be finalized July 2012
 - Applies to existing facilities that withdraw > 2 million gallons per day (MGD)
 - 1,260 facilities
 - 670 power plants (coal, gas, nuclear)
 - 590 manufacturing facilities
 - New units at existing facilities subject to more stringent requirements; impingement requirement for all facilities; no national entrainment requirement.
- Coal Combustion Residuals (CCR). (“Ash rule”)
 - Proposed June 2010; to be finalized “as expeditiously as possible”
 - Affects existing power plants: ~300 landfills & ~675 surface impoundments at ~500 power plants in 45 states
 - Co-proposed 2 options (one under Subtitle C and other under Subtitle D)
 - Proposed to retain “beneficial use” exclusion
 - Sought comment on > 100 issues
 - Received > 450K comments; 1400 individuals testified at 8 public hearings
 - Issued “Notice of Data Availability” (NODA) Oct 2011 requesting comment on additional specified issues.



Industrial/Commercial/Institutional (ICI) Boiler NESHAP

- **ICI Boiler NESHAPs** (National Emissions Standards for Hazardous Air Pollutants). (“Boiler MACT”)
 - 3 separate rules: major sources**, area sources**, and solid waste incinerators
 - Sets national emissions standards for hazardous air pollutants (HAP) (e.g., mercury, other metals, organics) from boilers
- **Schedule**
 - Proposed June 2010; final rule March 2011
 - Reconsideration proposal December 2011
 - 60 day comment period (December 23, 2011)
 - Final rule expected April 2012



Boiler MACT

Major Source Reconsideration Proposal

- Major source is a facility that emits
 - 10 tons per year of a single HAP or 25 tons per year of total HAPs
- 16 different subcategories of boilers/heaters based on design types and fuel type
- 753 Affected facilities in total with
 - ~ 600 coal units
 - > 800 liquid fuel units
 - ~ 500 biomass units
- Reconsideration proposal
 - Creates new subcategories for light and heavy liquids fuels
 - Sets fuel-specific limits for filterable particulates (PM) for each solid fuel subcategory
 - Sets new emissions limits for CO based on new data
 - Allows alternative total selective metals (TSM) limits as alternative to PM
 - Replaces numeric dioxin/furan limits with a work practice standard



Boiler MACT Requirements

Major Source Reconsideration Proposal

- Natural gas and refinery gas units
 - Annual tune-up (existing and new, all sizes)
- All other fuels (coal, oil, biomass, and process gas)
 - < 10 MMBtu/hr
 - Tune-up every 2 years for coal, oil, biomass, and process gas
 - Tune-up every 5 years for process gas and light liquid < 5 MMBtu/hr
 - >10 MMBtu/hr
 - Emissions limits for HG, PM, (or TSM), HCL, alternate CO CEMS limit
 - Work practice standard for Dioxin/Furan
 - One time energy assessment (existing only)



Boiler MACT Requirements

Area Source Rule

- 187,000 covered sources
- Natural gas and refinery gas units
 - No requirements (existing and new, all sizes)
- All other fuels (coal, oil, biomass, and process gas)
 - < 10 MMBtu/hr
 - Tune-up every two years
 - > 10 MMBtu/hr (existing)
 - Coal – emission limits for Hg and CO
 - Oil and biomass – tune-up every two years
 - One time energy assessment (existing only)
 - > 10 MMBtu/hr (new)
 - Coal – emission limits for Hg, PM and CO
 - Oil and biomass – emission limits for PM



For More Information

CSAPR

<http://www.epa.gov/crossstaterule/>

MATS

<http://www.epa.gov/mats>

CWIS

<http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/>

CCR

<http://www.epa.gov/wastes/nonhaz/industrial/special/fossil/ccr-rule/index.htm>

Boiler MACT

www.epa.gov/airquality/combustion